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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/557,737	04/25/2000	James Bennett	RATLP006C3	9934

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EXAMINER

BANANKHAH, MAJID A

ART UNIT	PAPER NUMBER
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2127

DATE MAILED: 03/10/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

P24

Office Action Summary	Application No.	Applicant(s)	
	09/557,737	BENNETT ET AL.	
	Examiner	Art Unit	
	Majid A Banankhah	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This office action is in response to application filed on April 25, 2000. Claims 1-35 are considered for examination.

Obviousness-type double patenting Rejection:

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

"Double patenting rejection of application claims was fully justified where applicant, in course of expanding first application to disclose enough more by way of details, alternatives, and additional uses to support broad, dominating, generic claims in later applications, has disclosed no additional invention or discovery other than that what was already claimed in patent on first application; there is significant difference between justifying broadening of claims and disclosing additional inventions." In re Van Ornum, 214 USPQ 761 (CCPA 1982).

Claims 1-35 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1-8 of application 08/871,247, now U.S. Patent No. 6,126,329 (hereinafter '329').

Although the conflicting claims are not identical, they are not patentably distinct from each other because of corresponding language that recites virtually all of the same elements and functions claimed in the previously patented invention, e.g., "", etc.

The claimed differences would be obvious to a programmer of ordinary skill because the instant claims are merely broader and/or alternate variations of the claims recited in the parent application.

For example, independent claim 1 of the instant application more broadly and/or alternately claims:

"A method for profiling execution of a computer program having functions the method comprising the steps of:

a) augmenting the program by performing the following augmenting steps for substantially all functions of the program;

i) selecting a function (the step of selecting a functions is inherent because, unless selection is made one cannot add profiling at both end of the functions);

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ii) adding function entry profiling code to the selected function;
iii) adding function exit: profiling code to the selected function; and
b) executing the augmented program and collecting profiling data for substantially all executed functions of the program”.

In contrast, claim 1 of the parent application (U.S. Patent ‘329’) more narrowly and/or alternately claims:

“1. A computer implemented method for profiling execution of a computer program having functions comprising instructions, the method comprising the steps of:
for each function, parsing the function instructions into basic blocks, wherein a basic block consists of a contiguous sequence of at least one instruction of which the first instruction is a program control transfer destination, the last instruction is a program control transfer instruction, and any instructions between first and last instructions are neither program control transfer destinations nor program control transfer instructions; and

for each basic block, performing under computer control, the steps of
selecting a basic block;
analyzing the selected basic block to determine a fixed number of clock cycles for the selected basic block, and to determine whether the selected basic block contains an operating system (OS) call; and
adding basic block profiling code so as to be executed whenever the basic block is executed, said basic block profiling code operating to add the determined fixed number of clock cycles to a clock cycle accumulator for the function, and further including, for at least one selected basic block containing an OS call, the OS call timing profiling steps of
adding timing start code to determine a start time immediately before executing the OS call;
adding timing end code to determine an end time immediately after executing the OS call;
adding OS call timing calculation code to determine from the start time and end time a number of clock cycles required to execute the OS call; and
adding OS call timing recording code to add the determined number of clock cycles to a clock cycle accumulator for the function;
wherein said OS call timing profiling steps are performed for substantially only basic blocks containing indeterminate length OS calls”

Because the instant claims merely eliminate and/or alternately claim limitations from the set of elements and functions claimed in the parent application, such modifications would be readily apparent to a programmer of ordinary skill.

Terminal Disclaimer

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

For post GATT applications, (i.e., applications filed after June 8, 1995); the rule § 1.321 (4) (c) (3) requires a provision that must be included. The following requirement is UNCHANGED by GATT and therefore a terminal disclaimer is required for the instant application, i.e., “shall be

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enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the rejection."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 18-19, 30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by W.P. Dawkins et al. (Effective Simulation of Multiprogramming, ACM SIGMETRICS Performance Evaluation Review, Proceedings of the a990 ACM SIGMETRIC conference on Measurement and modeling of computer systems, April 1990, Volume 18 Issue 1)[*hereinafter Dawkins*].

Per claims 1, 18, 30, and 32, the reference of Dawkins teaches of:

A computer implemented method for profiling execution of a computer program having functions (See, Abstract, also page 238, left columns, 4th paragraph after the first partial paragraph, *the program is time-profiled to identify basic blocks and insert accounting instructions at their boundaries*) the method comprising the steps of:

a) augmenting the program by performing the following augmenting steps for substantially all functions of the program (See, Dawkins, page 237, left col., 3rd paragraph, *real program is executed, and determine its basic block instructions*):

i) selecting a function (the step of selecting a functions is inherent because, unless selection is made one cannot add profiling at both end of the functions);

ii) adding function entry profiling code to the selected function;

iii) adding function exit: profiling code to the selected function (page 238, left col., 4th par. *After the first partial par. The program was time-profiled to identify basic blocks and insert accounting instructions at their boundaries*); and

b) executing the augmented program and collecting profiling data for substantially all executed functions of the program (same address as above, *the execution time to run this program include the overhead for time profiling*).

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Per claims 2 and 19, wherein the program augmenting step comprises performing said augmenting steps for all functions of said program, and wherein the executing step comprises collecting profiling data for all executed program functions (See Dawkins, page 238, left col. Paragraph starting with to evaluate the efficiency...).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-17, 20-29, 31, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawkins as applied to claim 1 above, and further in view of Pettis et al (Profile Guided Code Positioning, Karl Pettis and Robert C. Hansen, Hewlett-Packard Company, California Language Laboratory, Proceedings of the ACM SIGPLAN'90 Conference on Programming Language Design and implementation, June 1990)[*hereinafter, Pettis*].

The reference of Dawkins while teaches of parallel processing test-bed and a simulation environment for the study of parallel programs executing on parallel computers (page, 238, left col., 4th par., after the first partial par.), fails to explicitly teach of parallel stack simulation code indicating call chain. However, the reference of Pettis, teaches of Groups of basic blocks which are straight line sequence and are identified as Chains (page 16, left col., 3rd par., starting with "The second prototype, ...", and in page 17, right col., section 3.1. *Measurement method, and the use of measurement code, for the reason to update the individual counters in the data area as calls pass through the linker added stub during the execution of the application and writing the value of the counters to a file at the end of execution, also The counters are maintained in a data space of the application*). Pettis on page 18, Fig.1, and Fig.2, teaches of call chain optimization and the way functions are bypassed (See, A-D-C-F in Fig.1, and A, D-C, F in Fig. 2).

Per claims 4-7, and 20-21, the reference of Pettis teaches of adding code to determine sel+descendant time for a call and incorporating the time into profiling information on page 20, section 4.2.2. The Top-down positioning (the algorithm starts by first placing the entry basic block for the procedure (See also, the Example in section 4,2,3.)).

Per claims 8, the reference of Dawkins teaches of timing statistics on page 238, left col. Par., starting with "To evaluate the efficiency..."

Per claims 9-11, and 31 Dawkins teaches of basic blocks on page 237, left col., par., starting with "The basic block analyzer...", and regarding parsing in both references are teaching compiling

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which inherently teach of parsing. Later in the same paragraph he teaches of the program being executed under simulated control and timing variable to be incremented by the amount to the estimated execution time of the basic block.

As to claims 12, Dawkins teaches of fixed number of clock cycle in Fig. 1, and time slicing on page 237, right col., par., starting with "The current version..."

Per claim 13-14, Pettis teaches of execution time measurement on page 25, section 6.4, Compile-time Costs, and section 6.5., Run-Time-Costs.

Per claim 15, Dawkins teaches of the limitation on page 237, left col., par. Starting with "the basic block analyzer..."

Per claim 16, basic block containing intermediate length OS calls is taught by Pettis in Fig.2, After Second merger (see, node C,F, which is between links 7, and 3).

Per claim 17, Dawkins teaches of time slice quantum in his paper (See, page 237, left col., last par., insert instructions at the beginning of each basic block that cause a timing variable to be incremented by an amount equal to the estimated execution time for that block).

Per claim 23-25, and 33-34, Pettis teaches of call graph in section 3.1. Displaying a graph to a user is well known in the art for the reason that the user can have a better visual of the graph and visualize the call graph for profiling purposes.

Per claim 26-27, and 35, the pruning is taught by Pettis in section 3.2. Procedure ordering and page 18, Fig. 1, and Fig. 2.

Per claims 28-29, the number of functions does not affect the steps of the method therefore, does not constitute patentable limitations.

Conclusion

5.The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Majid A. Banankhah** whose voice telephone number is (703) 308-6903. A voice mail service is also available at this number.

All response sent to U.S. Mail should be mailed to:

Commissioner of Patent and Trademarks

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Washington, D.C. 20231

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 305-9600**.

Majid Banankhah

3/7/04


MAJID BANANKHAH
PRIMARY EXAMINER